

Digital VLSI Design Lab

This lab is offered to M.Tech VLSI & EMBEDDED SYSTEMS students and it is specially designed and developed for the students to learn about Modeling of CMOS logic circuits using Mentor Graphics Tools, modeling of combinational and sequential logic circuits using VHDL/Verilog and implementation of digital circuits on Xilinx FPGAs. This lab is well provided with equipment Xilinx ISE System Edition 14.7, XUP SPARTAN 3E Kit with USB Programming cable, this lab gives practical observation on design of CMOS Logic gates using Pyxis Schematic Editor and digital system implemented on SPARTAN 3E. At the end of the semester the student will be able to design CMOS Logic circuit modeling using pyxis schematic editor, Digital system modeling using VHDL and implementation on FPGAs. The Budget of this lab is around Rs. 15, 26,338/-.



Major Equipment:

S.No.	Name of the Equipment	Qty.	Cost in Rs.
1	HP desktop-intel(R) COR(TM) i 3-3240CPU @3.09GHZ,18.5" LED	36	3,50,000.00
2	Xilinx ISE System Edition 14.7	25	1,17,747.00
3	XUP SPARTAN 3E Kit with USB Programming cable	5	1,20,000.00
4	Zynq-Zed development Board	4	1,72,661.00
5	Zynq-Zybo Z20 Deployment Board	6	1,74,000.00
6	Mentor Graphics Front End Tools & Back End Tools	35 Users	5,30,930.00
7	APC 3 KV online UPS 6-UPS Batteries 26ah Exide 1-UPS Rack	01	61,000.00
Total (Fifteen Lakh twenty six thousand Three hundred and Thirty Eight Rupees only)			15,26,338.00

List of Experiments (As per R17 curriculum):

S.No.	Name of the Experiment
1	Design of 8 input priority encoder and 3 to 8 Decoder
2	Design of 8x1Mux and 1x8 Demux
3	Design of 4 bit adder
4	Design 4 bit Magnitude Comparator
5	Design of BCD adder
6	Design of ALU
7	Design of D,T,JK Flip Flops
8	Design of Shift Registers
9	Design of Counters
10	Design of FSM(Moore's, Mealy Machines)
11	Design of CMOS Inverter
12	Design NAND and EX-OR Gate

List of Experiments (Beyond the Syllabus):

S.No.	Name of the Experiment
1	Design Stepper motor/LCD Controller and Implement
2	Design NOR and Ex-NOR gate.

Lab Mentor : Dr. P. Lachi Reddy, Professor
Lab Incharge : Mr.G. Venkata Rao, Associate Professor
Lab Co-Incharge : Mr. G.Venkat Rao, Assistant Professor
Lab Programmer : Mr. S. Sudhakar Reddy, Programmer